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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/665,291	09/22/2003	Kodo Kawase	ASAIN0131	5633

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EXAMINER	
SUNG, CHRISTINE	
ART UNIT	**PAPER NUMBER**
2884	

DATE MAILED: 10/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/665,291	KAWASE ET AL.	
	Examiner	Art Unit	
	Christine Sung	2884	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 September 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-6* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *0704,1203*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1, 3 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Klein et al. (US Patent 5,293,213 A) in view of Federici (US Patent 6,815,83 B2).

Regarding claim 1, Klein et al. (Klein), discloses a differential imaging method (column 4, lines 61-62) using a THz wave (column 7, lines 5-6) comprising:

Generating THz waves (column 7, lines 5-6) in two different wavelengths (column 7, lines 5-6 and Figure 7, elements 10 and 12) within a frequency range of about 75-1200 THz (column 7, lines 6-8);

Irradiating a subject matter (Figure 7, element 26) with the THz waves on two wavelengths to measure their transmittances (column 14, lines 9-12 and 18-21); and

Detecting the presence of a target having wavelength dependence on the absorption of the THz wave from a difference of their transmittances (column 14, lines 22-43).

Klein does not specify that the wavelength range used is between 0.5- 3 THz.

Federici discloses a THz imaging array including multiple sources (see figure 1a, elements 10) that are tuned between 0.2-3 THz (see column 3, lines 36-39). One of ordinary skill in the art would be motivated to use the specified range disclosed by Federici with the invention as disclosed by Klein in order detect objects more accurately, such as explosive contraband, that have maximum absorption spectra within the claimed range.

Regarding claim 3, Klein discloses a differential imaging apparatus (Figure 7) using THz wave generation device (elements 10 and 12), which generates THz waves on two different wavelengths (column 7, lines 5-6 and Figure 7, elements 10 and 12) within a frequency range of about 75-1200 THz (column 7, lines 6-8);

A transmission intensity measurement device (figure 7) which irradiates (elements 10 and 12) a subject matter (element 26) with the THz waves on two wavelengths to measure their transmittances (column 14, lines 22-43).;

And a target detection device (element detector) which calculates transmittances from measured transmission intensity and detects the presence of a target having wavelength dependence on the absorption of the THz wave from a difference of their transmittances (column 14, lines 22-43).

Klein does not specify that the wavelength range used is between 0.5- 3 THz.

Federici discloses a THz imaging array including multiple sources (see figure 1a, elements 10) that are tuned between 0.2-3 THz (see column 3, lines 36-39). One of ordinary skill in the art would be motivated to use the specified range disclosed by Federici with the invention as disclosed by Klein in order detect objects more accurately, such as explosive contraband, that have maximum absorption spectra within the claimed range.

Regarding claim 6, Klein discloses that the transmission intensity measurement device (figure 7) that comprises a splitter (element 16) which splits the THz wave into a measurement light (element AB) and a reference light (AB') in a fixed ratio, a condensing lens (element 22) which focusing the measurement light onto the subject matter (element 26) to apply the measurement light thereto;

And an intensity measurement device or detector (Figure 9, element G or Detector) which measures the intensity of the measurement light (element AB) and reference light (element AB') that have passed through the subject matter.

4. Claims 2 and 4-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Klein et al. (US Patent 5,293,213 A) in view of Federici (US Patent 6,815,83 B2) further in view of Ito (JP 2000-0321134A).

Regarding claim 2, Klein discloses the limitations set forth in claims 1, but does not specify two-dimensional scanning. Ito discloses two-dimensionally scanning a surface of the subject matter (Detailed Description, Paragraph [0006]) with each of the THz waves on two different wavelengths (abstract);

And displaying two-dimensionally (figure 6, element 14) an image of a position where the transmittances of the two wavelengths differ (figure 7). One of ordinary skill in the art would

be motivated to 2-D scan the surface as disclosed by Ito with the invention as disclosed by Klein in order to increase the accuracy of the detected detection, by scanning small areas of the object.

Regarding claim 4, Klein discloses the limitation set forth in claim 3, but does not specify two-dimensional scanning. Ito discloses a two-dimensional scanning device which scans two-dimensionally a surface of the subject matter (Detailed Description, Paragraph [0006]) with each of the THz waves on two different wavelengths(abstract);

and an image display device that displays two dimensionally (figure 6, element 14) an image of a position where the transmittances of the two wavelengths differ (figure 7). One of ordinary skill in the art would be motivated to 2-D scan the surface as disclosed by Ito with the invention as disclosed by Klein in order to increase the accuracy of the detected detection, by scanning small areas of the object.

Regarding claim 5, Klein discloses the limitations set forth in claim 3, but does not specify the THz generation device as claimed. However, such THz generation devices are known and are disclosed by Ito. Ito discloses that the THz wave generation device (figure 2) has a non-linear optical crystal (element 3) which can generate a THz wave (element THz-Wave) by a parametric effect (abstract);

A pump light incidence apparatus (Figure 2), which allows a pump light (element 1) to be incident upon the nonlinear optical crystal (element 3) to generate an idler light (element idler) and the THz wave (element THz Wave);

And a switching device (element 2) which switches the generated THz wave to two different wavelengths (abstract). One of ordinary skill in the art would be motivated to use the

THz generator as disclosed by Ito with the invention as disclosed by Klein in order to generate radiation with a high resolution spectrum, thus increasing the accuracy of the incident radiation.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

6. US Pre Grant Publication 2003/0178584 A1- this reference discloses a terahertz imaging apparatus.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christine Sung whose telephone number is 571-272-2448. The examiner can normally be reached on Monday- Friday 7-3 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Porta can be reached on 571-272-2444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Christine Sung
Examiner
Art Unit 2884

CS

OTILIA GABOR
PRIMARY EXAMINER